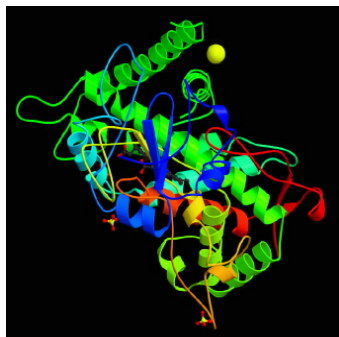


***DISTINGUISHED
LECTURER SERIES***

***VCU
MECHANICAL ENGINEERING***

***The Magic of
Microfluidics:
Designing &
Engineering
New Materials***



***Dr. Manuel Marquez
Philip Morris USA***

3 March 2008

Social Hour: 11:30-12:00 noon

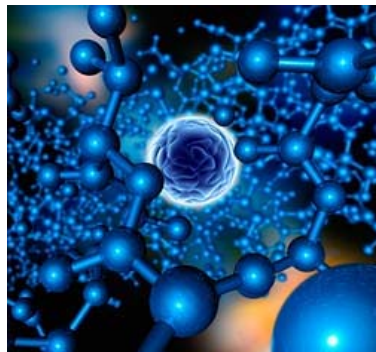
Seminar: 12:00-1:00 pm

Room E2214

Engineering East Hall

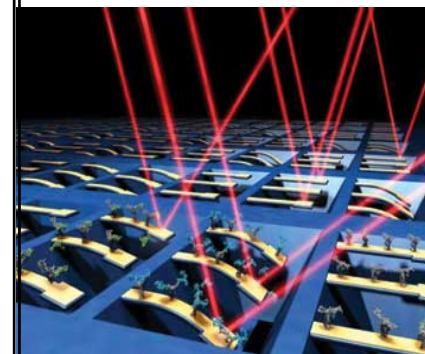
ABSTRACT

I will discuss some of the new research and opportunities that arises by precisely controlling fluid flow and mixing using microfluidic devices. I will describe studies to elucidate mechanisms of drop formation and use these to create new fluid structures that are difficult to achieve with other methods. I will show examples of the design and engineering of unique materials: e.g. capsules, colloidal particles and nanoreactors. I will focus on showing the potential of this emerging and enabling technology to design complex droplets as reactors and templates in chemistry, materials science and bioengineering.



Bio

Dr. Manuel Marquez received a B.Sc. and M.Sc. degrees (with highest honors) in chemistry from Simon Bolivar University (Venezuela). He obtained M.Sc./M.Phil and Ph.D. in organic chemistry from Yale University. He was a CONICIT and CAPIT Postdoctoral Fellow with Professor Steve Suib at Univ. Conn. He was then a Visiting Professor and Guest Scientist in several institutions, including University of Sevilla, Spain, University of Malaga, Spain, Yale U., Purdue U., and Rice U. In September 1999, he accepted a position as director (and founder) of the NanoteK Consortium (sponsored by Kraft Foods R&D). Dr. Marquez is also an active visiting scientific staff at Los Alamos National Laboratory Nanotechnology Center, a Fellow Associate at the Department of Engineering and Applied Science at Harvard University and a Guest Scientist at the National Institute of Standards and Technology (NIST). Since 2005, Dr. Marquez has been the director of the Interdisciplinary Network of Emerging Science and Technologies (INEST Group) sponsored by PMUSA. He also currently holds the positions of adjunct Professor of Bioengineering at Arizona State University and Visiting Professor at ME Dept. at Virginia Commonwealth University. Dr. Marquez has authored or coauthored over 200-research publications (including papers in SCIENCE and NATURE), edited two books, and been an inventor or co-inventor of over 30 patents. He serves on the editorial board of 2 scientific journals, and is an active consultant with several major chemical companies. He has received several national and international awards for his contributions to science and technology. Recently, he won the 2002 SHPE National Hispanic in Technology Award, 1998 HENAAC Most Promising Scientist Award, TALVEN Award from UNESCO-France, and the 2001 NanoInnovations Award for his work in chemical sensors.



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